

North of latitude 82°N and in the special segment north of 73°N between longitude 90°W and 120°W the A330 and 340 require us to switch the north reference to TRUE, when entering this area:

ND: SELECT TRUE REF

MCDU: **SELECT TRUE**

If you do not follow the instruction, the IRSs automatically revert from MAG to TRUE, the autopilot might disconnect, an amber caution **HDG DISCREPANCY** / **HDG CHECK** might be triggered and in addition

ECAM: **NAV EXTREM LATITUDE / - NORTH REF SEL ..... TRUE** is displayed

The PFD/ND will then display True TRK (TT), True HDG (TH) and in addition the ND shows the GRID TRK (GT) above latitude 65°N. Grid Track are parallel lines with reference to LONG 0°/North and are used in the polar region: on a G/C-leg the GT remains constant while the TT changes constantly due to the enormous longitude convergence in this region. (GT=TT + W LONG / - E LONG)

Special points:

- A330 shows **TRU**, the A340 **TRUE** on the PFD and ND
- TRUE: ILS CAT 1 only (certification)

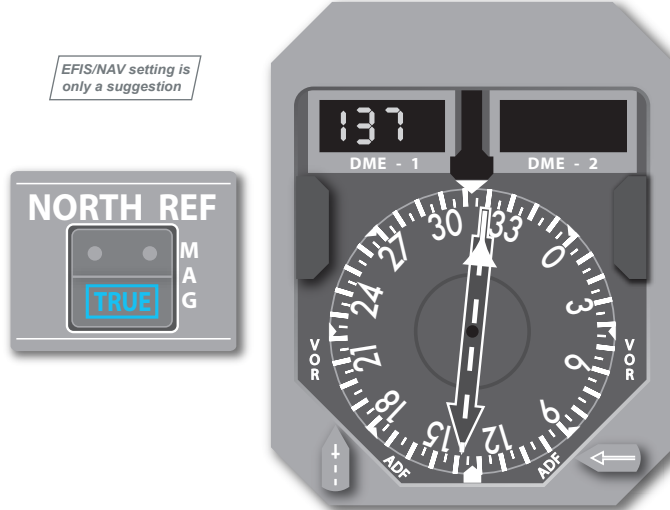
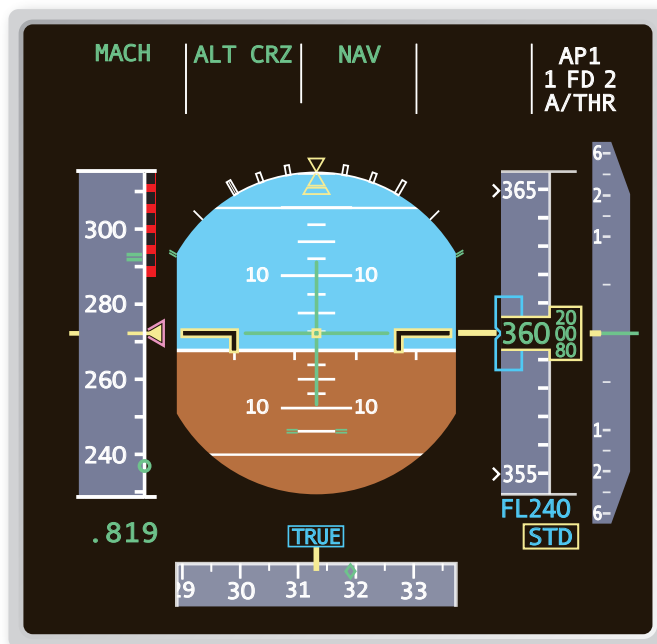
## DESCRIPTION / RESTRICTIONS

Position	NORTH REF	ADIRS	EFIS	COMPASS
< 60N	MAG (normal) man TRUE	MAG TRUE	NAV / TRK / HDG NAV / TRK / HDG	MAG MAG
60N - 65N	MAG (normal) man TRUE	MAG TRUE	NAV / TRK / HDG NAV / TRK / HDG	MAG erratic
65N - Polar Zone	MAG (normal) man TRUE	MAG TRUE	NAV / TRK / HDG NAV / TRK / HDG / GRID TRK	MAG erratic/useless
Polar zone	auto TRUE man TRUE	TRUE / AP may disc. TRUE	NAV / TRK/HDG target change NAV / TRK / HDG / GRID TRK	useless useless
APPROACH TRUE (THULE)	man TRUE	TRUE	ILS: CAT 1 only LLZ / BBLLZ / VOR / NDB	erratic

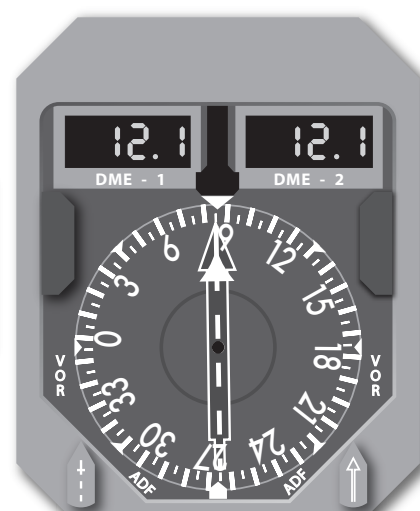
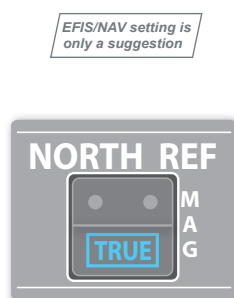
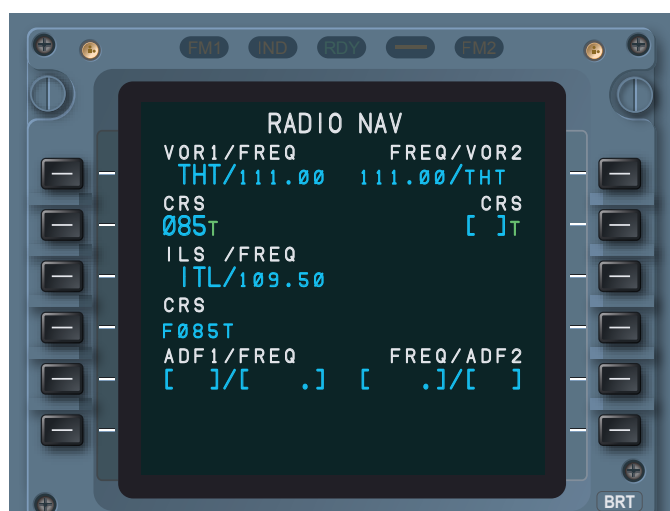
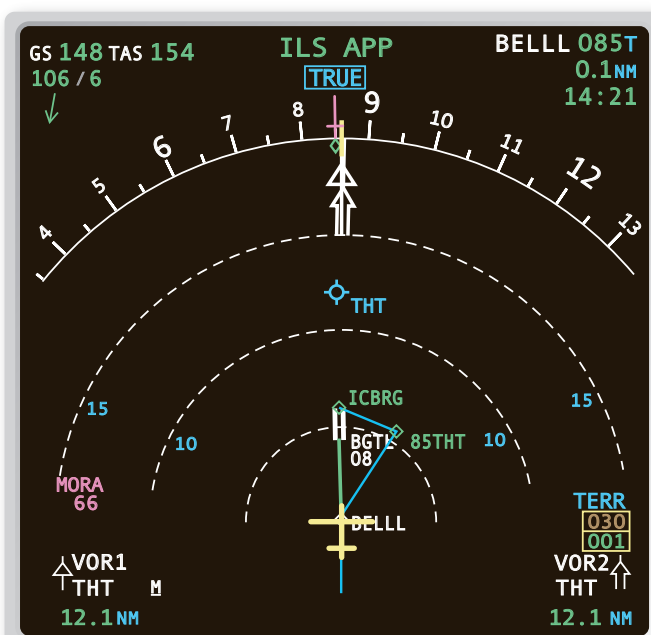
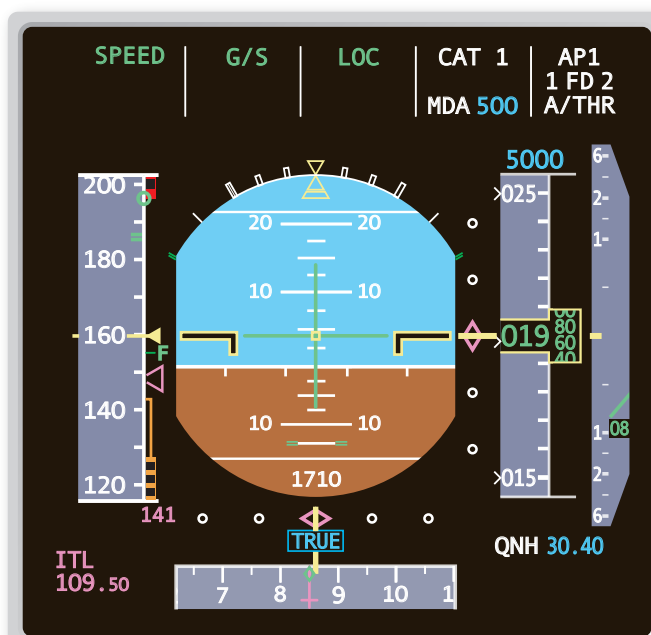
## AIRPORTS / APPROACHES

<b>BGTL</b> <b>THU</b> MO-FR 10-22 RFF: CAT 8	<b>Thule AFB</b> CLSD SA / SU / HOL NAV O/M: ILS TUE/FRI 17-19 VOR WED 1930-2120 DME MON 1930-2130	VAR.: 61°W else 6HR PN	- ILS / LLZDME 08 TRUE 3047m - VORDME 08 TRUE 3047m - CIRCLING (S of AD only) 26 TRUE 3047m
<b>BGSF</b> <b>SFJ</b> MO-SA 11-20 RFF: CAT 5 / CAT 8 4HR PN EMER: contact Sondre Info on 121.300 / 2950 / 5526 / 8945 / 10042	<b>Kangerlussuaq</b> CLSD SU / HOL PPR MNM 9HR PPR MNM 9HR	VAR.: 35.2°W	- LLZDME 10 MAG 2810m - NDBDME 10 MAG 2810m - CIRCLING (S of AD only) 28 MAG 2810m
<b>CYFB</b> <b>YFB</b> 24HR RFF: CAT 5 / MO-FR 13-22 ELSE 12HR PN	<b>Iqaluit</b>	VAR.: 38°W	- ILS DME / LLZDME 35 MAG 2557m - BBLLZDME 17 MAG 2557m - VORDME CIRCLING 141 MAG - NDB CIRCLING 014 MAG
<b>CYYQ</b> <b>YYQ</b> RFF: Not avail. at Airport / City Fire Brigade 30 MIN PN	<b>Churchill</b>	VAR.: 0°E	- ILS / LLZ / NDB / CIR 33 MAG 2804m - BBLLZ / CIR 15 MAG 2804m
<b>CYZF</b> <b>YZF</b> RFF: CAT 6 / 1330-0530 ELSE PN 2HR	<b>Yellowknife</b>	VAR.: 26E	- ILS / LLZ / NDB / CIR 33 MAG 2286m - BBLLZDME / VORDME / CIR 15 MAG 2286m

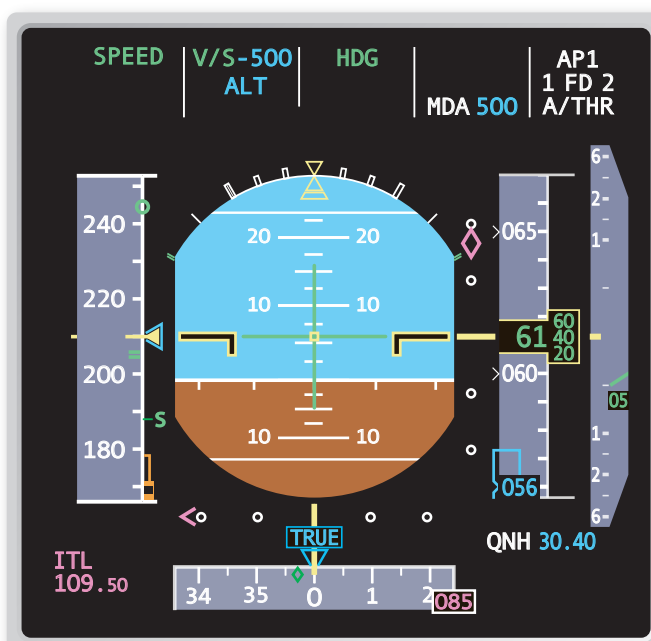
Wind direction: True in TAF and METAR, magnetic normally in TWR and ATIS reports. True at aerodromes in the Canadian Northern Airspace (north of 60°N) and Former USSR (except if variation >10°)



- a VOR with reference to TRUE NORTH is indicated by the suffix **TRUE** on the lower corner of the ND or in the FMGS/NAVAIDS page with a VOR variation of "ØT"
- whenever approaching a VOR with reference to TRUE NORTH, switch to **NORTH REF TRUE**:
  - PFD: - TRUE indication / MH→TH / MT→TT
  - ND:
    - TRUE indication (LAT > N65°: Grid Track GT)
    - MH→TH / MT→TT / Wind-Arrow shows wind-direction in TRUE (like digitals)
    - TO waypoint bearing changes to TRUE
    - ARC/ROSE NAV: a VOR (MAG reference) gets a **CORR** / a VOR (TRUE ref.) has no additional suffix
    - ROSE VOR/LS: a VOR (MAG ref.) gets a **MAG** / (NORTH REF MAG: a VOR (TRUE ref.) gets a **TRUE**)
    - an ADF relative bearing is independent of MAG/TRUE selection
  - FMGS:
    - F-PLN: BRG/TRK between waypoints in TRUE (e.g. BRG315T / TRK319T)  
PBD and PB/PB definition with TRUE (e.g. THT/250T/30)
    - RADIO NAV: VOR CRS insertion in TRUE (e.g. 216)
    - PROG: BRG/DIST: BRG indication TRUE (e.g. 069°T)
    - CLOSEST AIRPORTS: all BRGs in TRUE (e.g. 264°T)
    - EQUI-TIME POINTS: all BRGs in TRUE (e.g. 216°T)
  - DDRMI:
    - MH→TH / BRG pointer shows **TRUE** QDR/QDM if the VOR reference is **true** north  
BRG pointer shows **MAG** QDR/QDM if the VOR reference is **magn.** north !  
ADF bearing pointer: relativ bearing is independent of the NORTH REF selection



- an ILS with reference to TRUE NORTH may be flown only for CAT 1 and **NORTH REF TRUE** must be selected:
- **CHECK NORTH REF** message on ND and MCDU scratchpad appears if DEST and A/C reference not corresponds
- TRUE label on PFD and ND pulses during 10 seconds at slat extension
- PFD:
  - TRUE indication / ILS inbound track TRUE / MH→TH / MT→TT
  - example: present altitude is 250ft higher than on IAC: altitude correction with OAT -30°C (STD -41)
  - ILS minimum: CAT1 DA 460ft + increment of 40ft / BGTL temp. -30°C (STD -41)
- ND:
  - TRUE indication (LAT > N65°: Grid Track GT)
  - MH→TH / MT→TT / Wind-Arrow shows wind-direction in TRUE (like digitals)
  - ARC/ROSE NAV: a VOR (MAG ref.) gets a **CORR** / a VOR (TRUE ref.) has no additional suffix
  - ROSE LS:
    - ILS CRS in TRUE
    - a VOR (MAG ref.) gets a **MAG** / (NORTH REF MAG: a VOR (TRUE ref.) gets a **TRUE**)
  - both VOR pointers show the TT to THT (TRUE ref.) VOR
  - an ADF relative bearing is independant of MAG/TRUE selection
- FMGS:
  - F-PLN: BRG/TRK between waypoints in TRUE (e.g. BRG315T / TRK319T)
  - RADIO NAV: ILS CRS in TRUE (e.g. F085T)
  - PROG: BRG/DIST: BRG indication TRUE (e.g. 045°T)
  - PERF: in case of low temperature, insert the corrected DA
- DDRMI:
  - MH→TH BRG pointer shows **TRUE** QDR/QDM if the VOR reference is **true** north
  - BRG pointer shows **MAG** QDR/QDM if the VOR reference is **magn.** north !
  - ADF bearing pointer: relativ bearing is independant of the NORTH REF selection



- an ILS with reference to TRUE NORTH is indicated by an additional "T" (CRS) on the FMGS/RADIO NAV page
- whenever approaching an ILS with TRUE NORTH reference, switch to **NORTH REF TRUE**:

- PFD:
  - TRUE indication / ILS inbound track TRUE / MH→TH / MT→TT
  - for example: altitude correction with OAT -30°C (STD -41) » intermediate approach altitude 4800ft + 760ft = 5560ft. Set 5600ft on FCU!
- ND:
  - TRUE indication (LAT > N65°: Grid Track GT)
  - MH→TH / MT→TT / Wind-Arrow shows wind-direction in TRUE (like digitals)
  - ARC/ROSE NAV: a VOR (MAG ref.) gets a **CORR** / a VOR (TRUE ref.) has no additional suffix
  - ROSE VOR/LS: a VOR (MAG ref.) gets a **MAG** / (NORTH REF MAG: a VOR (TRUE ref.) gets a **TRUE**)
  - ROSE LS: ILS CRS in TRUE
  - an ADF relative bearing is independant of MAG/TRUE selection
- FMGS:
  - F-PLN: BRG/TRK between waypoints in TRUE (e.g. BRG315T / TRK319T)  
PBD and PB/PB definition with TRUE (e.g. THT/250T/30)
  - RADIO NAV: ILS CRS in TRUE (e.g. F085T)  
VOR CRS insertion in TRUE (e.g. 085)
  - PROG: BRG/DIST: BRG indication TRUE (e.g. 138°T)
- DDRMI:
  - MH→TH / BRG pointer shows **TRUE** QDR/QDM if the VOR reference is **true** north  
BRG pointer shows **MAG** QDR/QDM if the VOR reference is **magn.** north !  
ADF bearing pointer: relativ bearing is independant of the NORTH REF selection



LOST	HAVE
<ul style="list-style-type: none"> <li>• <b>GPS and Radio Position</b></li> <li>• <b>LDG ELEV</b></li> <li>• <b>managed speed / performance data</b></li> <li>• <b>EFOB</b></li> <li>• <b>NAV autotuning:</b> <ul style="list-style-type: none"> <li>- <b>navaids must be selected on RMP</b></li> <li>- <b>EFIS: navaids confirmed with "R"</b></li> </ul> </li> <li>• <b>F-PLN legs:</b> <ul style="list-style-type: none"> <li>- <b>heading legs / course to fix legs</b></li> <li>- <b>INTCP / pseudo waypoints</b></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>F-PLN page and F-PLN display on ND</b></li> <li>• <b>true track between waypoints</b></li> <li>• <b>PROG page / DIR to function</b></li> <li>• <b>reduced flight planning possibilities</b></li> </ul>

<b>SELECTION:</b>	<ul style="list-style-type: none"> <li>• REENGAGE and SELECT the required AP and ATHR</li> <li>• select NAV B/U prompt (MCDU)</li> <li>• select NAV on both RMP</li> </ul>
<b>OPERATION:</b>	<ul style="list-style-type: none"> <li>• select TRK / FPA</li> <li>• select SPD / MACH</li> <li>• select TRK to TO WAYPOINT</li> <li>• select appl. NAVAIDS on RMP</li> <li>• approaching waypoint: <ul style="list-style-type: none"> <li>- read outbound true track</li> <li>- select outbound track</li> <li>- note time / GS / FOB</li> </ul> </li> <li>• adjust the track to follow the F-PLN with X-TRK=0</li> </ul>
<b>NAVIGATION:</b>	<ul style="list-style-type: none"> <li>• compare computed data with raw data: <ul style="list-style-type: none"> <li>- PROG: enter navaid LAT/LONG</li> <li>- select navaid needle on the ECP</li> <li>- compare BRG/DIST with RAW DATA on ND</li> </ul> </li> <li>• positive x-check: - ND may be used in Rose NAV/MAP</li> <li>• negative x-check: - ND <b>MUST</b> be used in Rose VOR or Rose ILS</li> </ul>
<b>F-PLN:</b>	<ul style="list-style-type: none"> <li>• you may: <ul style="list-style-type: none"> <li>- insert and delete WPT</li> <li>- insert an OVERFLY triangle</li> <li>- DIR TO a waypoint</li> <li>- CLR waypoints / discontinuities</li> </ul> </li> <li>• WAYPOINT+ DIR TO: <ul style="list-style-type: none"> <li>- use F-PLN waypoints or</li> <li>- insert waypoints as IDENT/LAT/LONG e.g. FIX/4715.3N/00811.5E F-PLN <b>FIX 4715.3N/00811.5E</b></li> <li>- insert waypoints as LAT/LONG e.g. 5432.1N/01234.5E F-PLN <b>N54E012 5432.1N/01234.5E</b></li> </ul> </li> </ul>
<b>DESCENT:</b>	<ul style="list-style-type: none"> <li>• use OP DES or FPA to descend</li> <li>• adjust manually the LDG ELEV (• set MDA on the STBY altimeter)</li> </ul>
<b>APPROACH:</b>	<ul style="list-style-type: none"> <li>• NON ILS APCH: <ul style="list-style-type: none"> <li>- select the approach reference navaids on RMP</li> </ul> </li> <li>• ILS APCH: <ul style="list-style-type: none"> <li>- only CAT1 apch may be flown (DH is not avail.)</li> <li>- check ILS on the RMP</li> <li>- push LS on the ECP</li> <li>- check VAPP in the QRH</li> </ul> </li> </ul>

